

Claims:

1. A method of producing a modified fiber product, according to which method
  - cellulosic raw material is formed into a fiber suspension,
  - 5 – components modifying the properties of fibers are added to the fiber suspension and
  - fiber material is dried,

characterized in that

  - alkyl derivative of cellulose is mixed into the fiber suspension in alkaline
  - 10 conditions, the derivative being at least partly dissolved in water, and
  - the derivative is allowed to be bonded to the fibrous raw material prior to drying the fibrous material so that the bonded cellulose derivative can not be washed off with water.
- 15 2. A method according to claim 1, **characterized** in that a paper or paperboard web having good strength properties or good water retention is produced.
3. A method according to claim 1, **characterized** in that a cellulose product having good water retention is produced for use in hygiene products.
- 20 4. A method according to any of claims 1 - 3, **characterized** in that the used alkyl derivative of cellulose is carboxymethyl cellulose, carboxyethyl cellulose, methyl cellulose, ethyl cellulose or ether derivatives of any of these.
- 25 5. A method according to any of the previous claims, **characterized** in that the alkyl derivative of cellulose is allowed to be sorbed to the cellulose from the water phase so that at least 10 %, preferably 20 %, and especially preferably at least 30 % of the derivative contained by the water phase is allowed to be sorbed to the cellulose.
- 30 6. A method according to any of the previous claims, **characterized** in that the pH value of the pulp is more than 8, preferably more than 10.
7. A method according to any of the previous claims, **characterized** in that the pulp is

mixed with the cellulose derivative for at least 5 minutes, preferably at least 10 minutes and especially preferably for at least 20 minutes before drying.

8. A method according to any of claims 1 - 7, **characterized** in that the cellulose derivative  
5 to be sorbed is alkali soluble carboxymethyl cellulose (CMC), the DS of which being less than 0.5.

9. A method according to claim 8, **characterized** in that the polymerization level of the CMC is about 100 - 5000.

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10. A method according to claim 8 or 9, **characterized** in that the DS of the CMC is 0.2 - 0.4.

11. A method according to any of claims 1 - 7, **characterized** in that the cellulose  
15 derivative to be sorbed is hydroxy-propyl-methyl cellulose (HPMC), hydroxy-ethyl-methyl cellulose (HEMC) and hydroxy-buthyl-methyl cellulose (HBMC).

12. A method according to any of the previous claims, **characterized** in that about 10 %, at the most, of the cellulose derivative can be washed off the treated fibrous raw material at a  
20 temperature of 25 °C and a neutral pH value.

13. A method according to any of the previous claims, **characterized** in that in comparison with untreated paper, the same internal bond strength is achieved while using at least 10 % less pulp.

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14. A method according to any of the previous claims, **characterized** in that the cellulose derivative is contacted with the cellulose fibers in an alkaline flow of a pulp or paper mill.

15. A method according to claim 14, **characterized** in that the cellulose derivative is  
30 contacted with the cellulose fibers in an alkaline bleaching stage, such as an oxygen (O) or peroxide (P) stage.

16. A method according to claim 15, **characterized** in that the cellulose derivative is

contacted with the cellulose fibers in the peroxide bleaching of mechanical pulp.

17. A method according to claim 16, **characterized** in that the cellulose derivative is first contacted with chemical pulp, subsequent to which the pulp is drained and the filtrate is  
5 introduced to the peroxide bleaching of mechanical pulp.

18. A method according to claim 14, **characterized** in that the cellulose derivative is mixed with the cellulose fibers subsequent to the beating of fibers.

- 10 19. A method according to any of the previous claims, **characterized** in that the web forming is performed without an intermediate drying of pulp after sorption of the cellulose derivative.

20. A method according to any of the previous claims, **characterized** in that the amount of  
15 cellulose derivative is 0.1 to 5 % by weight of the cellulose fibers.

21. A modified fiber product, **characterized** in that it contains at least 0.1 % of CMC by (dry) weight of the fibers bonded to the fibers, the DP of the CMC being about 100 - 5000 and the DS about 0.1 - 0.4.